on a primary basis (although it need not be specifically allocated to the ITFS service), and must provide a signal that is equivalent to the prior signal in picture quality and reliability, unless the ITFS licensee will accept an inferior signal. Potential expansion of the ITFS licensee may be considered in determining whether alternative available spectrum is suitable.

(j) If suitable alternative spectrum is located pursuant to paragraph (h) of this section, the initiating party must prepare and file the appropriate application for the new spectrum, and must simultaneously serve a copy of the application on the ITFS licensee to be moved. The initiating party will be responsible for all costs connected with the migration, including purchasing, testing and installing new equipment, labor costs, reconfiguration of existing equipment, administrative costs, legal and engineering expenses necessary to prepare and file the migration application, and other reasonable documented costs. The initiating party must secure a bond or establish an escrow account to cover reasonable incremental increase in ongoing expenses that may fall upon the migrated licensee. The bond or escrow account should also account for the possibility that the initiating party subsequently becomes bankrupt. If it becomes necessary for the Commission to assess the sufficiency of a bond or escrow amount, it will take into account such factors as projected incremental increase in electricity or maintenance expenses, or relocation expenses, as relevant in each case.

(k) The ITFS party to be moved will have a 60-day period in which to oppose the involuntary migration. The ITFS party should state its opposition to the migration with specificity, including engineering and other challenges, and a comparison of the present site and the proposed new site. If involuntary migration is granted, the new facilities must be operational before the initiating party will be permitted to begin its new or modified operations. The migration must not disrupt the ITFS licensee's provision of service, and the ITFS licensee has the right to inspect the construction or installation work.

[29 FR 7023, May 28, 1964, as amended at 31 FR 10743, Aug. 12, 1966; 36 FR 11587, June 16, 1971; 48 FR 33901, July 26, 1983; 49 FR 32596, Aug. 15, 1984; 50 FR 26758, June 28, 1985; 55 FR 46013, Oct. 31, 1990; 56 FR 57819, Nov. 14, 1991; 58 FR 44951, Aug. 25, 1993; 59 FR 35636, July 13, 1994; 60 FR 20246, Apr. 25, 1995; 63 FR 65113, Nov. 25, 1998; 65 FR 46620, July 31, 2000]

§ 74.903 Interference.

(a) Since interference in this service will occur only when an unfavorable desired-to-undesired signal ratio exists at the antenna input terminals of the affected receiver, the directive properties of receiving antennas can be used to minimize the hazard of such interference. Interference may also be controlled through the use of directive transmitting antennas, geometric arrangement of transmitters and receivers, and the use of the minimum power required to provide the needed service. Harmful interference will be considered present when the reference receiving antenna is oriented to receive the maximum desired signal, and a free space calculation determines that the desired-to-undesired signal ratio is less than the value specified for the respective channel under consideration.

(1) Cochannel interference is defined as the ratio of the desired signal to the undesired signal, at the output of a reference receiving antenna oriented to receive the maximum desired signal level. Harmful interference will be considered present when a calculation using a terrain sensitive signal propagation model determines that this ratio is less than 45 dB (or the appropriate value for bandwidths other than 6 MHz.)

(2) Adjacent channel interference is defined as the ratio of the desired signal to undesired signal present in an adjacent channel, at the output of a reference receiving antenna oriented to receive the maximum desired signal level.

(i) Harmful interference will be considered present when a calculation using a terrain sensitive signal propagation model determines that this ratio is less than 0 dB (or the appropriate value for bandwidths other than 6 MHz.)

(ii) In the alternative, harmful interference will be considered present for an ITFS station constructed before May 26, 1983, when a calculation using a terrain sensitive signal propagation model determines that this ratio is less than 10 dB (or the appropriate value for bandwidths other than 6 MHz), unless:

(A) The individual receive site under consideration has been subsequently upgraded with up-to-date reception equipment, in which case the ratio shall be less than 0 dB. Absent information presented to the contrary, however, the Commission will assume that reception equipment installation occurred simultaneously with original station equipment; or

(B) The license for an ITFS station is conditioned on the proffer to the affected ITFS station licensee of equipment capable of providing a ratio of 0 dB or more at no expense to the ITFS station licensee, and also conditioned, if necessary, on the proffer of installation of such equipment; and there has been no showing by the affected ITFS station licensee demonstrating good cause and that the proposed equipment will not provide a ratio of 0 dB or more, or that installation of such equipment, at no expense to the ITFS station licensee, is not possible or has not been proffered.

(3) For purposes of this section and except as set forth in §74.939 regarding the protection of response station hubs, all interference calculations involving receive antenna performance shall use the reference antenna characteristics shown in Figure I, §74.937(a) or, in the alternative, utilize the actual pattern characteristics of the antenna in use at the receive site under study. If the actual receive antenna pattern is utilized, the applicant must submit complete details including manufacturer, model number(s), co-polar and cross-polar gain patterns, and other pertinent data.

(4) If an application can demonstrate that the installation of a receiving antenna at an existing licensee's site with characteristics superior to those of the standard antenna (or, alternatively, the appropriate existing antenna in use at the site) will permit the applicant to provide service without interference to the existing licensee, the application will be considered grantable with the condition that the applicant bears all costs of upgrading the existing licensee's reception equipment at that site(s). Such a showing should include interference calculations for both the existing or reference antenna and the proposed antenna. The manufacturer, model number(s), co-polar and cross-polar gain patterns of the replacement antenna should be supplied as well as an accurate assessment of the expected reimbursement costs.

(5) No receive site more than 35 miles from the transmitter shall be entitled to interference protection.

(6) Notwithstanding the above, main, booster and response stations shall use the following formulas, as applicable, for determining compliance with: (1) Radiated field contour limits where bandwidths other than 6 MHz are employed at stations utilizing digital emissions; and (2) Cochannel and adjacent channel D/U ratios where the bandwidths in use at the interfering and protected stations are unequal and both stations are utilizing digital modulation or one station is utilizing digital modulation and the other station is utilizing either 6 MHz NTSC analog modulation or 125 kHz analog modulation (I channels only).

(i) Contour limit: -73 dBW/m^2 + 10 log(X/6) dBW/m^2, where X is the bandwidth in MHz of the digital channel.

(ii) Co-channel D/U: 45 dB + 10 log(X_1/X_2) dB, where X_1 is the bandwidth in MHz of the protected channel and X_2 is the bandwidth in MHz of the interfering channel.

(iii) Adjacent channel D/U: 0 dB + 10 log(X_1/X_2), where X_1 is the bandwidth in MHz of the protected channel and X_2 is the bandwidth in MHz of the interfering channel.

(b) All applicants for instructional television fixed stations are expected to take full advantage of such directive antenna techniques to prevent interference to the reception of any existing or previously-proposed operational fixed, multipoint distribution, international control or instructional television fixed station at authorized receiving locations. Therefore, all applications for new or major changes must

include an analysis of potential interference to all existing and previously-proposed stations in accordance with paragraph (a) of this section. An applicant for a new instructional television fixed station must include the following technical information with the application:

(1) An analysis of the potential for harmful interference with the receive sites registered as of September 17, 1998, and with the protected service area, of any authorized or previously-proposed cochannel station if:

(i) The proposed transmitting antenna has an unobstructed electrical path to receive site(s) and/or the protected service area of any other station that utilizes, or would utilize, the same frequency; or

(ii) The proposed transmitter is within 80.5 km (50 miles) of the coordinates of any such station.

(2) An analysis of the potential for harmful adjacent channel interference with the receive sites registered as of September 17, 1998, and with the protected service area, of any authorized or previously-proposed station if the proposed transmitter is within 80.5 km (50 miles) of the coordinates of any station that utilizes, or would utilize, an adjacent channel frequency.

(3) An analysis concerning possible adverse impact upon Mexican and Canadian communications if the station's transmitting antenna is to be located within 80.5 km (50 miles) of the border.

(4) In lieu of the interference analyses required by paragraphs (b)(1) and (2) of this section, an applicant may submit (a) statement(s) from the affected cochannel or adjacent channel licensee(s) that any resulting interference is acceptable.

(5) Specific rules relating to response station hubs, booster stations, and 125 kHz channels are set forth in §§21.909, 21.913, 21.949, 74.939, 74.949 and 74.985. To the extent those specific rules are inconsistent with any rules set forth above, those specific rules shall control.

(c) Existing licensees and prospective applicants, including those who lease or propose to lease excess capacity pursuant to §74.931(c) or (d), are expected to cooperate fully and in good faith in attempting to resolve problems of potential interference before bringing the matter to the attention of the Commission.

(d) Each authorized or previously-proposed applicant, or licensee must be protected from harmful electrical interference at each of its receive sites registered previously as of September 17, 1998, and within a protected service area as defined at §21.902(d) of this chapter and in accordance with the reference receive antenna characteristics specified at §21.902(f) of this chapter. An ITFS entity which did not receive protected service area protection prior to September 17, 1998 shall be accorded such protection by a cochannel or adjacent channel applicant for a new station or station modification, including a booster station, response station or response station hub, where the applicant is required to prepare an analysis, study or demonstration of the potential for harmful interference. An ITFS entity receiving interference protection provided by this section will continue to receive such protection if it elects to swap channels with another ITFS or MDS station as specified in §74.902(f).

[28 FR 13731, Dec. 14, 1963, as amended at 50 FR 26758, June 28, 1985; 51 FR 9799, Mar. 21, 1986; 58 FR 44951, Aug. 25, 1993; 60 FR 20246, Apr. 25, 1995; 60 FR 57368, Nov. 15, 1995; 63 FR 65114, Nov. 25, 1998; 64 FR 63737, Nov. 22, 1999; 65 FR 46620, July 31, 2000]

§74.910 Part 73 application requirements pertaining to ITFS stations.

The following rules are applicable to ITFS stations.

Sec.

73.3500 Application and report forms.
73.3511 Applications required.
73.3512 Where to file; number of copies.
73.3513 Signing in applications.
73.3514 Content of applications.
73.3517 Contingent applications.
73.3519 Repetitious applications.
73.3522(a) Amendment of applications.
73.3533 Application for construction permit or modification of construction permit.
73.3534 Application for extension of construction permit or for construction permit to replace expired construction permit.
73.3536 Application for license to cover construction permit.
73.3542 Application for temporary or emergency authorization.